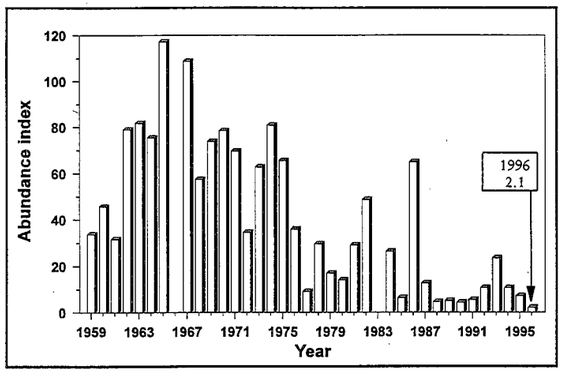

Figure 1
ABUNDANCE INDICES FOR YOUNG STRIPED BASS
WHEN CATCH LENGTH IS 38mm

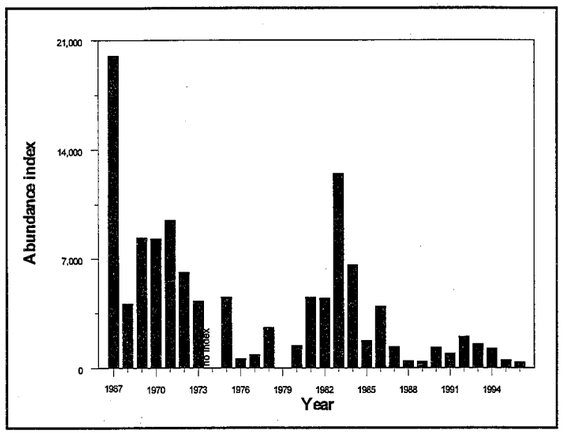

Figure 2
ABUNDANCE INDICES FOR STRIPED BASS BASED ON
SEPTEMBER-DECEMBER FALL MIDWATER TRAWL SURVEYS
No survey in 1974 and 1979.

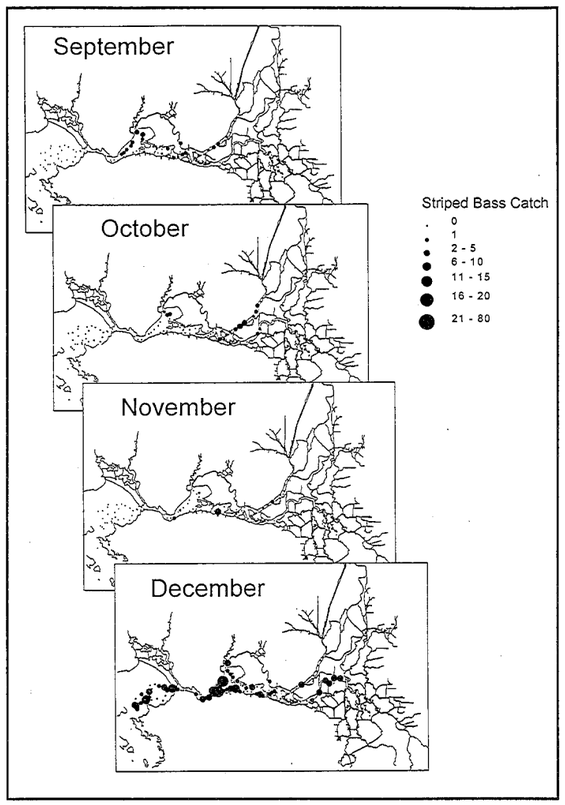

Figure 3
DISTRIBUTION OF STRIPED BASS IN THE
1996 FALL MIDWATER TRAWL SURVEY

Adult Striped Bass

David W. Kohlhorst, DFG

Adult striped bass population estimates, based on a mark/recapture study, are available from 1969 to 1994 (Figure 1). Striped bass were not tagged in 1995, so no abundance estimate is available for that year; the 1996 estimate is not yet available. After declining from an average of 1.7 million legal-sized fish in the early 1970s, the population seemed to be stable at a new, lower level of 825,000-1.2 million between 1977 and 1989. In 1990, the estimate decreased to 651,000 and has since declined to the lowest level on record of 604,000 in 1993 before rebounding somewhat to 712,000 in 1994.

Estimates of recruitment have varied much more than total legal-sized abundance during 1977-1993 (Figure 2), while showing a decline similar to that of all legal-sized adults. The age-3 abundance estimate has ranged from 314,000 in 1989 to 1.2 million in 1978. The 1994 estimate of 960,000, based only on recaptures from the first creel census after tagging, will probably decrease when a larger recapture sample is available; that has been the pattern in recent population estimates. (About half the age-3 fish are legal-sized at the time the estimate is made, so only half of the age-3 fish are included in the legal-sized adult estimate above.) Variation in the age-4 estimate has been

from 103,000 in 1994 to 560,000 in 1980. The variability of the recruitment estimates (especially for age 3) is partly due to real variability in recruitment, but it also is influenced by small numbers of tag recaptures in some recent years and the effect of aging errors.

All ages of adult striped bass have decreased in abundance over the last 20 years (Figure 2). The decline from 1969-1973 to 1990-1994 has ranged from 49% for age 3 and age 5 bass to 80% for bass age 8 and above, the oldest fish in the population (Figure 3).

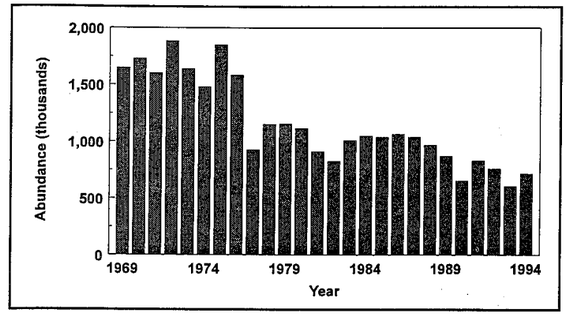

Figure 1
ESTIMATED ABUNDANCE OF LEGAL-SIZED STRIPED BASS

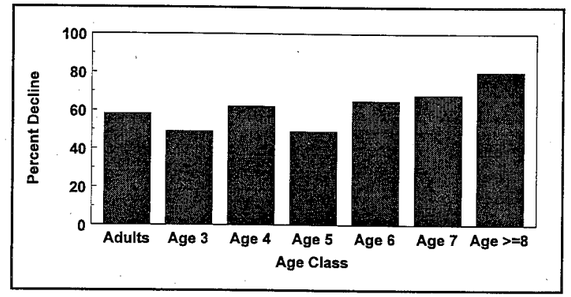

Figure 3
PERCENTAGE OF DECLINE IN EACH AGE CLASS OF
STRIPED BASS BETWEEN 1969-1973 AND 1990-1994

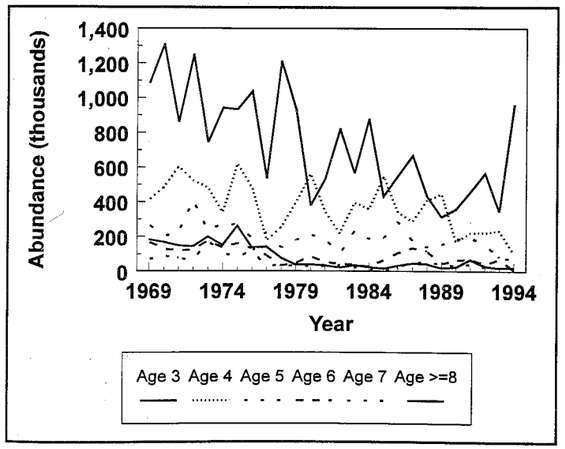

Figure 2
ESTIMATED ABUNDANCE OF STRIPED BASS, BY AGE

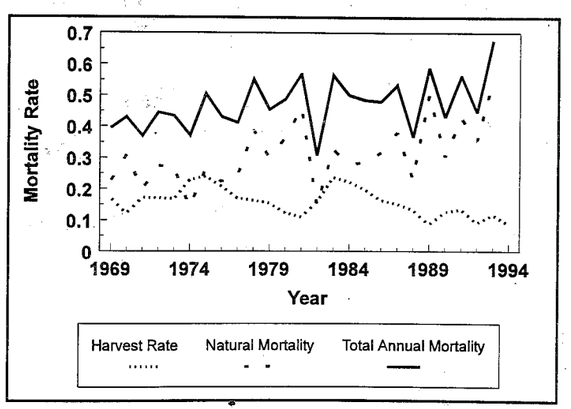

Figure 4
MORTALITY RATES OF ADULT STRIPED BASS

During this same period, mortality rates of adult striped bass have changed also. Estimated total annual mortality rate has shown a significantly increasing trend since 1969 and reached its highest level (0.67) in 1993 (Figure 4). This change in total mortality is the result of a significant increase in estimated "natural mortality" (due to factors other than legal fishing) rate from 1969-1993, while estimated harvest rate exhibited a significant downward trend.